COOP'S TECHNOLOGY DIGEST

-A Timely Report On The World Of Communications-

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COOP'S TECHNOLOGY DIGEST

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GIANT HUGHES Looking For New Zealand Internet Partner

For an initial investment in the region of US$2,000,000, some individual or firm in New Zealand will become an operating partner with Hughes Network Systems (Inc.), and become a non-exclusive provider of medium to high speed Internet and other data connections in New Zealand under the trading name DirecPC (NZ). Hughes Network Systems (HNS) is a division of Hughes Electronics Company which either owns or is affiliated with a globe circling constellation of satellites. Hughes also developed the now runaway success Ku-band DBS (DTH) television delivery system in North America (in partial partnership with RCA and Thomson). Hughes is also partnering in a similar set of systems for Japan and neighbouring Asia, and as reported in CTD (9607, p. 9) is joining commercial forces with PanAmSat.

HNS has pioneered direct to home (office) Ku-band delivered data and Internet service using satellites serving North America. The concept is quite straight forward:

1) Medium to high speed data (including voice, video, text files, Internet, e-mail) is transmitted from one or more uplink stations to a satellite.

2) On the ground individual (under US$2,000) satellite terminals receive this data at a rate that is approximately 14 times faster than the best grade of home style telephone modem now available.

3) The individual terminals include a standard terrestrial modem which allows the user to communicate with the (New Zealand) Network Operations Centre (NOC) maintained by the national operator.

In its most basic form, the customer uses the modem to connect with and give instructions to the NOC. Unlike existing Internet and text file systems, the user then hangs up the terrestrial link and within seconds the material requested is delivered via satellite. The advantages are access time (faster), delivery speed (faster) and software (they say more user friendly).

The New Zealand based NOC is doing far more than becoming a distributor for Hughes hardware and software, although these are two important ingredients. The NOC is going into direct competition with existing Internet providers in New Zealand and in theory could be seen as a "major gateway provider" accessing to Internet and exclusive-to-DirecPC services.

There are three key elements in the proposal (which has been offered to several New Zealand firms):

1) Files downloaded to the user's PC through a 60cm satellite dish and receiver can be as simple as e-mail or as complex as real time video (up to 3 Mbps now; up to 30 Mbps during 1997)

2) Users can "browse" as they now do on Internet but the primary use will be specific data requested by dialling up the NOC through the PC modem, placing an "order" and then hanging up the terrestrial connection to await delivery fo the document "envelope."

3) The NOC "licensee" runs the New Zealand business but shares revenues with Hughes on a scheduled basis as spelled out in the contract.

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Hughes has formed similar relationships with firms located in other countries (in Japan: Hitachi Cable Corp., Japan Telecom Co. Ltd, Sony Music Entertainment [Japan] Inc., and Parallel Technology, Inc.) and each country has its own set-up (licensee) charges and "minimum required hardware" which is purchased from Hughes as a part of the initial licensing agreement. These minimums as well as the going-in license fee vary as a function of market size (i.e., Fiji would be proportionately lower than New Zealand).

With Hughes and PanAmSat becoming a single entity during 1997, the interconnection of Hughes North American satellites and PanAmSat international satellites will be "seamless." The service would work on either C or Ku (satellite) bands but because Ku-band receive site antennas are considerably smaller (easier to install, less objectionable to neighbours, less expensive) the band of preference is Ku. PanAmSat PAS-2 has ample, unused satellite transponder spectrum to facilitate separate DirecPC segments to New Zealand, Australia and virtually all other "within footprint" regions in the Pacific. Additionally, PAS-8 scheduled for launch in 1998 will more than double the available satellite spectrum space available for this region.

Hughes sees the day to day operation of DirePC a little differently than many Internet providers. With Internet, users are free to modem-in (sign on) and "surf" searching for materials of interest. Locating specific information is facilitated through entry of well publicised "Web Site Addresses." Individual web sites are maintained by individuals, groups, commercial companies, centres of learning and trade groups. DirecPC will not deny access to any of these sites to users but taking a page out of television and radio broadcasting experience, will also "schedule" specific materials on an "updated to the minute" basis in a "broadcast mode" at various times of the day. Users will be notified through their satellite fed service of the day's operating schedule, which is a new layer placed on top of the normal Internet operation. Individual companies will be able to contribute material to the "up to the minute" scheduled transmissions. Hughes see this as a merging of traditional broadcast + newspaper technology with the delivery sped of Internet.

Suggested DirecPC Deployment

ARO / Contract award date
+ **.5 month**/ Order of terrestrial backhaul for NOC
+ **1 month**/ Export license (*) application completed
+ **2 months**/ Site Survey for NOC and engineering
+ **2 months**/ Export license granted to HNS
+ **3.5 months**/ Delivery of initial equipment to NOC from HNS
+ **3.5 months**/ Completion of NOC site (**)
+ **4 months**/ Customs clearance of NOC hardware, delivery to site
+ **4 months**/ Installation of terrestrial backhaul to NOC
+ **4.5 months**/ Start of NOC installation and preliminary testing
+ **5 months**/ Complete installation/test of NOC, system acceptance
+ **5.5 months**/ NZ to NZ testing of NOC to DirecPC terminals through satellite link
+ **5.5 months**/ Shipment of additional DirecPC terminals

*/ US law requires State Department approval for export of high tech computer equipment

**/ NOC site will include uplink to satellite and under Resource Management Act constraints relating to installation of a microwave transmitter, this could be a generous interpretation of the actual time required

To Date

As of mid-December (1996) Hughes has DirecPC operational in North America but provides no verifiable count as to the number of customers for the service. Shortly after the service announced there, a Hughes spokesperson reported 10,000 home DirecPC units had been sold into the distribution chain. In Japan the service is in a test mode and is expected to actively take on regular clients sometime between now and March 31.

A firm that gained the license to be DirecPC (NZ) could expect a time frame shown here in boxed format. Note the start date is defined as "receipt of Purchase Order" from the NZ NOC-to-be by Hughes. Hughes believes six months will be required to go from purchase order to operation.

What Licensee Is Buying

The New Zealand affiliate firm will pay US$1,000,000 for a non-exclusive license fee. By the license, HNS authorises construction of a DirecPC Hub and Network Operations Centre (NOC), and authorises the licensee to market DirecPC throughout the country of New Zealand. HNS provides proprietary software to operate the NOC and the New Zealand

CAC/ Pentium 5/66 computer (16MB ram), 14" VGA monitor, SCI Unix V3.2.4 operating system with 2 User License, (3) 1.0GB Hard Drive in Raid 1 array (1 spare), Ethernet NIC Card, Token Ring NIC Card, Informix-SE Version 5.01.UD2 single user, Informix I-SQL Version 4.11.UC3 single user.

HUB SERVER/ Pentium 5/100 Computer 32 MB RAM, (6) 4.2GB Hard Drive in Raid 5 array, 14" VGA monitor, (3) Ethernet NIC Card, SCO Unix V5.0 Operating System with 25 User License and Documentation, CD ROM, Internal DAT Tape.

HYBRID GATEWAY/ Pentium 5/66 Computer 16MB RAM (*), 1 GB Hard Drive, 14" VGA Monitor, (2) Ethernet NIC Card, Token Ring NIC Card, OS/2 TCP/IP for OS/2 Network Transport Services for OS/2 (* - will support 2,000 subscribers).

AVI BROADCASTER/ Pentium 90 Computer 16 MB RAM Microsoft Windows 3.1, 14" VGA Monitor, Ethernet NIC Card, Intel Smart Video Recorder Pro, Sound Card.

MPEG BROADCASTER/ Pentium 90 Computer 16 MB Ram Microsoft Windows 3.1, Intel Ether Express Pro Network Interface Card, Future-Tel PrimeView MPEG Adapter.

FIREWALL/ Risc Unix work station, 17" monitor, 32 MB Memory, 1 GB Disk storage, (2) Ethernet NIC Card, Commercial Firewall Software (for Hub Server protection).

INTERNET SERVER/ Risc Unix work station, 17" monitor, 128 MB Memory, 8 GB Disk storage, Ethernet NIC Card, Domain Name Server POP Mail Server NNTP Server & Commercial Website Server.

NETWORK MANAGEMENT/ Ethernet (10BASET) 'Sniffer', Token Ring 'Sniffer', Management software for 'Sniffers', Spectrum Analyser, High end UNIX platform for Network Management, Network Management Software (HP Openview or similar).

HEALTH MONITORS/ (2) Pentium 90 Computer 16 MB RAM, (2) CD ROM, (2) 1.6 GB Hard Drive, (2) 14" Monitor, (2) Sound Card with speakers, (2) DirecPC Adapter Cards, MPEG Decoder, Microsoft Windows (3.1, 3.11 or Windows95).

QUALITY ASSURANCE MONITOR & REDUNDANCY CONTROL UNIT/ (2) Pentium 90 Computer 16MB RAM, (2) 540 MB Hard Drive, (2) 14" Monitor, (2) Sound Card with speakers, (2) DirecPC Adapter Cards, (2) Microsoft Windows 3.1.

SATELLITE GATEWAY/ Dual Processor Pentium Computer RAM, (2) PCI Adapter Card.

DP LAN GATEWAY/ (2) Pentium 5/66 Computer 16 MB RAM, (2) 14" VGA Monitor, (2) Token Ring NIC Card, (2) Ethernet NIC Card, (2) OS/2 Network Transport Services for OS/2.

PD LAN GATEWAY/ Pentium 5/66 Computer 16 MB RAM, 14" VGA Monitor, Token Ring NIC Card, Ethernet NIC Card, OS/2 Network Transport Services for OS/2.

TI LAN GATEWAY/ Pentium 5/66 Computer 16MB RAM, 14" VGA Monitor, (2) Token Ring NIC Card, Ethernet NIC Card, OS/2 Network Transport Services for OS/2.

TERRESTRIAL INTERFACE/ 10 port terminal server for Hub Server access, 20 port terminal server for Turbo Internet access, (35) 28.8 v.34 modem, IP Router with 2 serial ports and 2 Ethernet ports.

NETWORK HUB/ Chassis, (2) Token ring module 24 port, (4) Ethernet module 24 port, SNMP Management Software.

Costing total - (US) $960,440.

This is not all the licensee will require. The satellite uplink/downlink for the NOC must be added as well as terrestrial linking equipment. The satellite portion would be in excess of US$500,000.

portion of the system. The license fee also includes on-site (i.e., in New Zealand) technical support (1,000 man hours). The license fee does not include any real hardware or software.

In addition to the license fee, the New Zealand firm will be required to purchase specified equipment for the DirecPC NOC ("gateway") from Hughes. The equipment suggested for New Zealand is outlined (above) in box form. Which gets us into the DirecPC business capable of serving 2,000 "subscribers." At the very least, more than 2,000 subscribers require enlargement of the Hybrid Gateway equipment shown (above) at an additional cost of US$17,990 for each 2,000 subscribers. Now, what happens at the customer level - those 60cm (actually 60 x 80cm) dish anchored systems?

The "standard" 'DAK' (Direct Access Kit) is shown here in box form; suggested retail price is (US)$1,158. The NOC acts as a distributor for this package of equipment and the ultimate user will pay considerably more per installed system based upon dealers handling the product from the NOC-distributor with normal mark-ups, plus the installation (where required). The NOC receives volume discounts for the DAK reaching 39% but only at levels of 10,000 units and more. Basic Hughes to NOC pricing appears to be as follows:

1-99 units/ (US)$908.
100-499 units/ (US)$863.
500-999 units/ (US)$823.
1000-2499 units/ (US)$793.
2500-4999 units/ (US)$758.
5000-9999 units/ (US)$738.
10000 up (US) $708.

Additionally, a (US) $75 installation kit is available which begins at $51 and drops to $39.50 at maximum discount. At the 1000-2499 level the NOC will pay US$837.25 per DirecPC DAK (including the installation kit) strongly suggesting the installed retail price per user will be in the region of NZ$2,000 allowing for dealer/installer mark-ups. Note that two or more ISA Bus cards (i.e., separate PCs connected) can be connected to a single antenna - a package that many business users will employ. NOCs are required to purchase a minimum of 1000 DAK packages which adds an additional (US) $837,250 to the funding required to become a NOC here (including the license fee and the hardware/software previously discussed, the going-in cost has now risen to US$2,797,690.

Software Maintenance Fees

Software maintenance is a not inconsequential additional cost for the NOC. Within the initial $960,440 cost for hardware and software there are numerous operating systems and special purpose software programmes. Additionally, each customer premise DAK also has significant software which will become more complex over time as newer versions capable of higher speed data delivery become available (**1**). The NOC will agree to pay (US)$50,000 for year one maintenance of the NOC site software rising in steps to $150,000 for year five. For each DAK site, the maintenance fee is US$55 for year one rising to $78 for year five. Against this HNS agrees to correct any "material defects in the software licensed under the agreement."

The DirecPC Direct Access Kit (DAK)

Each customer will have a satellite dish system consisting of the following parts:
1) 60 x 80cm elliptical reflector with non-penetrating roof mounting hardware (rated to survive winds to 120 mph)
2) Ku band linear polarisation LNBF
3) ISA Bus Card (inserts into customer PC, see requirements, separately) which combines satellite reception and signal processing onto single card (supplies power to LNBF through cable)
4) Cable kit (100m; up to 300m cable length supported by system)
5) System specific software including DirecPC Release 1.3 which supports Windows 3.1, Windows for Workgroups 3.11, OS/2, Windows95 and push Package Delivery to Windows NT, or, alternately DirecPC Release 1.4 which also supports Windows95 automatic set-up, NetWare and Turbo Internet / pull Package Delivery for Windows NT.

ISA BUS CARD Specifications

Bus spec/ 16-bit ISA standard
Controller/ MIPS R3000-20MHz
Bit rate/ 11.79 MHz
Buffer memory/ 128 Kbytes
Program Memory/ 256 Kbytes
Input frequency range/ 950-1450 MHz
RF input/ F connector, 75 ohm
Voltage & current requirements/ 5 V, 3.0 A minimum; 12V, 50 mA maximum
Size/ ISA standard
Operating Temperature/ 0 to 50C
Security/ DES based Conditional Access

Minimum PC Configuration for the DAK

1) Pentium 75 MHz processor
2) 16 Mbyte RAM
3) 20 Mbyte of free hard drive disk space (DirecPC software)
4) Modem
5) Colour monitor

1/ A PCI bus adapter card is scheduled to be available between April and June (1997) which will support multiple data rates from 3 Mbps to 30 Mbps.

Classes of Service

The DirecPC customer will have three broadly defined categories of service available. They are:

1) Package delivery (for storage of information)
2) MultiMedia (for "live" broadcast of information)
3) Turbo Internet (for Internet access and downloading of [Internet] files)

Package delivery of material is done by "envelopes" with specific addresses. An example: A New Zealand firm associated with a foreign supplier requires update sheets for a piece of equipment. The sender places the material into an "electronic envelope" with addressing and forwards same to HNS. In real time or on a delayed basis the material is then transmitted via the HNS system to the addressee.

MultiMedia is one-way packet transmission in a "data pipe" for video, audio or text files on a scheduled basis. Each MultiMedia transmission is addressed to a specific recipient or multiple recipients and through conditional access routines limited in distribution to those addresses.

Turbo Internet allows the customer PC to be connected to Internet sources after requesting through a terrestrial modem connection to specific Internet sites. DirecPC customers request connection using their modem connecting to their NOC which is in turn connected to an Internet Access Provider. Enquiries into Internet are from the DirecPC equipped PC to the Internet and are received via satellite from the NOC. The system works in the range of 400 kbps because the NOC spoofs the Internet Access Provider and provides a larger TCP window size.

Users will pay fees based upon their class of service. HNS does not establish user rates; the NOC does this (**2**). However, HNS does charge the NOC established fees for each user based upon the class or level of service selected by the user. Therefore certain minimum charges must apply since the NOC has the HNS charges as a fixed overhead. Commercial users with two or more "seats" per site are charged based upon the number of PCs (seats) using the service. HNS has established "suggested retail pricing" for user charges for basic levels of service; a form of "minimum charge per annum" for each user.

Example one: An individual selecting only Internet connection. The DAK Internet annual license is US$500 (the equivalent of US$41.66 per month); the NOC pays $275 for this license (in small quantities; fees come down for customers with multiple "seats" per location). This allows the user to operate in the "Turbo Internet" mode.

Example two: A business user with 10 "seats" selecting "Server" and "Internet" levels of service at each of the 10 PCs connected. The customer will pay US$360 per seat ($3,600 total) for a "business license" plus $250 per seat ($2,500 total) for the "Server License" plus $500 per seat ($5,000 total) for the Internet license. This becomes US$11,100 per annum for 10 "seats" or $1,100 per PC connected. The NOC will have paid $6,925 for the same licenses for the business customer.

Summary

There is a bare-bones investment (including funds to carry the business through an operational loss period) that approximate NZ$7,000,000. The HNS license is non-exclusive (at least as presently under offer) and in a region of the world with a limited population base this could be a serious concern. Moreover, while HNS may be first out of the pack there will most certainly be numerous competitors who will offer similar services in the next five years (**3**). The most obvious competition will come from Telecom (NZ), BCL(4), Clear and Telstra - all of which are positioning themselves to be lower cost, fuller service providers.

2/ Under the terms of the licensing agreement, the NOC retains 80% of all use fees collected and HNS takes 20% of the gross billings. Thus the relationship between HNS and the NOC is more akin to a franchise arrangement than a simplistic buyer/seller agreement.

3/ The Hughes system functions using geostationary orbit (GEO) satellites. Competition from low earth orbit (LEO) and medium earth orbit (MEO) satellite systems backed by Motorola, Microsoft and others are scheduled to commence service over the next 48 months. Each will directly compete with the HNS offering.

4/ BCL is proposing a terrestrial based Digital Distribution Network (DDN) utilising the 12 GHz frequency band with transmitters primarily located at existing BCL sites, those sites being interconnected via satellite (see CTD 9701, February 05, 1997)..

TECHNOLOGY BYTES

...BITS and BYTES you may have missed in the rush to make a dollar ...

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Satellite TV and Radio

Palapa C2M, 113E, appears to have done corrections to its transmission beam pattern (footprint) and the net result is improved signal levels (coverage) into New Zealand on a number of transponders. A table (below) shows the effects of the changes. There are now 10 transponders with DTH quality level signals using 3 metre dishes (plus two which are not intended for New Zealand viewing: TNT + Cartoons and HBO Asia) and of those 12, 4 are now strong enough to be viewed on dishes as small as 1.8m in size. Palapa has been fine tuning the coverage patterns for C2M since July and the present coverage is the "best" for New Zealand and south Pacific to date. C2M replaced C1 in June after initial testing of C1 indicated the satellite had serious operational problems; especially at Ku band (which is important to Asian coverage but not to the south Pacific). Both satellites were launched in the first 5 months of 1997.

Skandia SK888 receiver, custom developed for Australian Skandia Electronics Pty Ltd (tel 621-3-9819-2466, fax 61-3-9819-4281), arrived at our sister publication SatFACTS Monthly too late for test and written review in current (SF28, December 15) issue. Receiver is first tested that comes out of the box, plugs in, turns on and instantly produces full range of pre-programmed (EBB) channels (as well as NBC on PAS-2). Video quality is excellent, operational controls straight forward and user learning curve is short. A full review in January 15 SF29 will say, "*At Last - a Digital Receiver that operates with the same ease and convenience of a normal TV set or microwave oven*!"

Nokia 9500 S European bred satellite receiver which received "bad initial review" in SatFACTS for December 15th is perhaps redeemed based upon reports that most recent models received in New Zealand correct most of the original unit problems. Units received by Telsat Communications (tel 64-6-356-2749, fax 64-9-355-2141) early in December appear to do the following: European Bouquet, STAR TV bouquet on 3900 MHz from AsiaSat 2, World Television News on 3786.4 from AsiaSat 2, NBC bouquet from PAS-2 on 4093. At this point in time if there is a "contest" to see which consumer version IRD will do the greatest variety of FTA bouquets, the Nokia 9500 S would be the leader. "Shoot out" for "Best IRD of Show" is likely during SPRSCS '97 in Auckland January 21-25.

Caveat emptor. Mid-December buyer of "new Scientific Atlanta D9223 PowerVu IRD" from Sydney office of S-A was dismayed to unpack receiver from shipping carton that obviously was not intended for this receiver and find: No power cord, no user manual, significant scratches and blemishes from previous use including indentations on the receiver front panel indicating it had been rack mounted before shipment, and worst of all - the receiver which was represented to be "the latest software" is in fact the software for the D9223 units shipped first last May. The receiver had shipping carton notation "CTN" leading to speculation that Chinese Television

1010/Brunei 3m	1050/ESPN (B-MAC) (5m)	1090/Indosair Indonesia 3m	1130/ANteve Indonesia 7m	1170/CNNI 3m	1250/TV3 Malaysia 3m
1330/RTM Malaysia 3m	1410/RCTI Indonesia 3m				

990/CFI Paris 1.8m	1030/MTV 7m	1070/TPI Indonesia 2.1m	1150/HBO (B-MAC) (1.8m)	**1230/GMA Philippines 1.8m**	**1310/TVRI Indonesia 1.8m**
1390/TNT+ (B-MAC) (2.1m)					

Mysterious Malady Strikes European Bouquet Pacific Region Coverage

Availability of the 5 TV channel European Bouquet (EBB) package from AsiaSat 2 has sparked a mini-boom in home DTH systems in Australia, especially among Italian immigrants. Unlike New Zealand, Australia "sees" AsiaSat 2 at a suitable "look angle" (elevation) and with adequate signal strength for dishes in the 1.8m range to produce high quality signal recovery from the EBB (DVB Compliant) package. A "standard" Melbourne region system is a 1.8m antenna, consumer grade digital IRD, 20 degree LNBF with pricing in the region of A$2,700 installed. In Australian regions with slightly weaker AsiaSat 2 signals, a 2.1m dish is employed.

On December 6th a percentage of the 1.8m dishes lost EBB service. On December 7th this percentage grew (to become a majority of all sold) and some 2.1m systems were experiencing signal outage periods. None of this had happened previously.

By December 11th dish installing firm telephones were ringing off the wall. Distributor Skandia Electronics (Leon Senior) immediately went to Asia Satellite Telecommunications Co. Ltd. seeking assistance. His fax read:

"*I confirm that the levels of signal on the European Bouquet (DW et al) have dropped 2dB here in Australia. Over the past several days we have received numerous calls from customers experiencing reception problems. Most of these complaints are from installations using 1.8m dishes which until now have worked quite well with this digital service. We have taken measurements at various reception sites confirming a loss of 2dB.*"

And in turn AsiaSat did their own testing and then contacted Deutsche Welle with:

"*Today I received a call from Mr. Leon Senior in Australia stating that the signal level on AsiaSat 2 European Bouquet has dropped by 2dB across Australia. However, we do not observe any signal drop in Hong Kong and there is no indication of anything wrong with the satellite. Therefore, would you be kind enough to as your Israeli uplink station to check their equipment and uplink power stability?*"

while at the same time advising Leon Senior:

"*I have checked our reception in Hong Kong with a 2 metre TVRO. This reception is fine and no degradation of signal level is observed. Would you supply me with additional information?*

1) Is this so-called 2dB drop across the whole of Australia or only within certain areas?

2) Can you employ a spectrum analyser to monitor the signal and obtain a printout for us?

3) Please note that 1.8m TVRO is not the size we recommend for AsiaSat 2 reception in Australia. Would you consider using larger dishes?"

Within hours a reply from Deutsche Welle related:

"*Thank you very much for your information about the degradation of our signal on AsiaSat 2. The loss of signal was due to an equipment failure at the uplink station in Israel. The problem should be resolved now. In the future do not hesitate to contact us directly.*"

During the period of signal loss in Australia (reports were scatted from northern Queensland to Adelaide) observers in New Zealand saw a degradation of approximately 1dB in the EBB level. The mystery that remains is why the Hong Kong facility operated by AsiaSat did not see a loss at the same time. In theory, an outage such as this that effects only a limited geographic area would be traceable to some malfunction (change) in the transmitting antenna pattern (coverage) of the satellite proper; an operating parameter which the EBB Israeli uplink does not control.

Out of this comes a set of important telephone, fax numbers and contacts which anyone using AsiaSat 2 services should file for future reference:

AsiaSat: Tik Yak tel. 852-2805-6850, fax 852-25045-3871

Deutsche Welle (EBB) Germany:

B. Klaumann at fax 49-219-2922-423 and H.J. Winking at the EBB Bockhaven monitoring station tel 49-2192-9224-11 fax 49-2192-9224-23.

Network may have been source for "used" unit although S-A represented it to be new and unused. Buyer had ordered receiver to obtain latest DVB/MPEG software (see CTD 9606, p. 10). S-A responded with initial offer of "credit for a new PowerVu" when buyer complained, leading unhappy customer to point out the obvious: "*This was supposed to be a new one and in fact I paid you for a new one!*"

Canal France International (CFI) is joining forces with Canal + to create six programme channel digital bouquet on Intelsat 704 at 66E. The package of services was to have begun operation 1 December, now put off until sometime in January. There is the possibility this package of programming (which will include Canal + 1,2,3,4 and 5 along with CFI) may migrate to Palapa C2M as well during 1997. CFI has a full transponder on

THE STRANGE "SKY STATION" PLAN

In a world where every possible concept for creating and launching satellites to varying altitudes (LEO - low earth orbit, MEO - medium earth orbit, GEO - geostationary earth orbit) would seem to have been exhausted there comes a totally new proposal that borders on the bizarre. If the backers of the plan did not have "stature" it would most likely be quickly discounted as a lunatic-fringe concept.

"Sky Station" is not a satellite - it is a 20 mile (altitude) 17 ton platform, rather like a modern day dirigible. Satellites cost big bucks (upwards of US$50m each) but Sky Stations have a budget of US$3.2m each. The platforms as proposed are 500 feet long by 120 feet wide and they will not orbit the earth; rather they "float" above a spot on earth. Now - from 20 miles altitude a platform loaded with rather traditional "repeater" equipment would be a relay station for cellular telephones, two-way radio, normal terrestrial radio and TV. The world concept for Sky Station calls for 250 of the devices located such that virtually every populated region of the globe would be within "reach" of a station. The total project comes to US$800 million; this in a communications world where Motorola is spending US$5.5B for its network of 66 satellites and McCaw + Gates plan to invest US$9B in their 840 satellite system. Closer to home, two Sky Platforms positioned above central North Island and central South Island would provide complete national coverage for a multitude of communication services.

Now - less you suspect heretics are involved in the proposal to recreate the Hindenburg using modern technologies, consider the backers. The major heavyweight is General Alexander M. Haig, Jr., former counsellor to US presidents (Secretary of State for Reagan). He is joined in this effort by his son and a most unusual US businesswoman named Matine Rothblatt. She changed her name from Martin to Martine several years ago after fathering four children as a male (a real door opener in official circles). Her fame as a transsexual is world-wide following her/his book publication "*The Apartheid of Sex: A Manifesto on the Freedom of Gender.*"

If - you are now certain this is a plan with heretical origins, think again. The plan is well down the road to regulatory approval and the US is planning to seek special frequencies for the Sky Platform rebroadcast service at the 1997 World Radio Conference meeting in Geneva. And the reason for this acceptance of the proposal is unrelated to either Martine Rothblatt's charm or Haig's connections. It has to do with the environment. For, you see - Sky Platform is not merely a oversized reproduction of the Hindenburg - it is an "ozone cleansing machine." Run that by you again?

Think of Sky Platform as a vacuum sweeper in near space. UCLA Physics Professor Alfred Wong conceptualised it in the mid 80s; a machine running on corona ions that sucks up and destroys all of those insidious chlorine molecules sent spaceward by unrepentant occupants of earth (including all of those cows and sheep who "dung up our atmosphere" daily with leavings).

Haig, Rothblatt and company put the two proposals together as one: A Sky Platform held in position by a corona ion engine, gobbling up dreaded chlorine molecules, destroying them and spitting back out clean molecules. And while the machine performs this task, its sizeable surface also supports in near-space a platform loaded with radio and television signal repeater and broadcasting equipment. Environmentalists who understand the concept are ecstatic about the plan but not everyone thinks it a good one.

Motorola, with Iridium so far down the track that it could not be stopped short of a planet wide upheaval, warns (selfishly perhaps) the Sky Platforms will, "*tumble out of the sky*" and "*wreak havoc*" on the population below. Aviation authorities must be convinced Motorola is not right before they will approve the plan. Threats of sabotage are another matter (one well placed "Stinger Missile," unfortunately copiously available world-wide in the arms market, would find Sky Platform a "sitting duck."). Fears of a repeat of a Hindenburg disaster are countered by pointing out the platforms will levitate using non-flammable helium (Hindenburg used highly explosive hydrogen); should a platform leak, burst or be shot down, in theory giant parachutes will bring it gently back to earth.

To help put credibility to the plan, Haig and company have signed on three-star General James Abrahamson who ran the Strategic Defense Initiative (Star Wars) for the Pentagon. One FCC official notes, "*If Sky Station solves the safety and regulatory problems, it could devastate the satellite industry.*" And perhaps rid the world of ozone depletion problems in the process.

Palapa (C2M) and is known to be looking for ways to expand its appeal and revenue base. The CFI Palapa C2M channel would offer the advantage of covering New Caledonia, Vanuatu as well as New Zealand and Australia (in addition to much of Asia).

Home Shopping Network, US based over the air catalogue shopping service, is expanding into Japan. HSN Japan will be 70% owned by Jupiter Programming which is owned jointly by cable giant TCI and Japanese Sumitomo.

CNN experienced significant technical problems with feeds on PAS-2 and C2M evening of December 15th. Failure was between uplink in California and PAS-2 downlink as service degraded on C2M (which is fed through PAS-2) at same time as it deteriorated on PAS-2. Signal levels measured from PAS-2 were as much as 10dB below normal dramatically affecting cable and other services using CNN(I).

German managed AsiaSat 2 European Bouquet delivery of Internet connected 'MediaNet' service has run into snag; Israeli uplink which receives EBB services (TV5 and MCM France, RTVE Spain, RAI International Italy, Deutsche Welle Germany + 14 radio service channels) requires modification to handle Internet service. Uplink provider DMV/NTL discovered fault in uplink system design only days ago as service prepared for initial testing. The holiday period upon us will not expedite modification of the uplink and no date has been forecast for start-up of the new service to the Pacific and Asia.

RAI International disagreements reported in CTD 9609 (p. 5) have been resolved following intervention of Italian diplomats in Australia. Italian Consulate, Sydney, has advised parties to the dispute, "*The RAI International service* (AsiaSat 2, free to air) *and the TeleItalia service launched by OptusVision and Galaxy are totally separate in programming. Neither takes priority and each will have to stand or fall on its own programming merits.*"

TV5 France within EBB has been testing "squeezing in an extra audio (radio) channel" for distribution to receive sites in Asia and Pacific. Initial tests indicated the audio quality is excellent but their primary service (TV5) suffers. More tests are scheduled (if TV5 seems poorer in stability than other EBB services at any moment, this could be the reason)

NBC Asia has reached agreement with prestigious National Geographic Television with plans to launch an NGT 24 hour service to Asia and the Pacific "in 1997." NBC Asia and companion service CNBC have previously "stood alone" and depended upon a now year-old arrangement with STAR TV to distribute their programming in a number of Asian markets. The STAR TV deal was intended to allow NBC to get into cable and SMATV systems throughout Asia as a part of the various Murdoch operated STAR TV digital bouquets planned. However, the implementation of the STAR digital bouquets has fallen badly behind previously announced schedules and NBC increasingly has struck out on its own to create signal carriage deals in Asia. Among those recently announced: ASTRO (All Asia Television & Radio Company) is now carrying 24 hour NBC Asia and CNBC within their digital Measat 1 transmitted Ku-band bouquet; Radio Television Malaysia (RTM) is now carrying CNBC extracts twice daily; TV12 Singapore is likewise now carrying CNBC extracts daily; through an agreement with CCTV/CITV (China) both NBC services are now going into 10,000 hotel rooms around the country with a projection of 70,000 rooms; various programs from CNBC are now carried by Philippines terrestrial broadcaster IBC. NBC claims to have coverage in 39 million Asian homes at this time through cable, satellite and terrestrial linking. The primary distribution venue for NBC Asia and CNBC is their full transponder space on PAS-2. Presently, the Philips uplink equipped system is configured to carry a possible 7 TV programme channels of which 3 are seldom utilised except for special feeds. Thus NBC has "spare transmission capacity" which would suit distribution of services such as NGT. With the success NBC has achieved in increasing coverage through its own efforts, the launch success of new services such as NGT seem assured simply because cable and SMATV distributors will be encouraged to add NGT to their systems by merely adding a new (digital) receiver for the service. The likelihood that NBC will become a "bouquet distributor" in its own right, quite separate from any deals that may continue with STAR TV, is high. NGT is therefore unlikely to be the only "non-NBC service" distributed by the end of 1997.

Hong Kong Cable & Satellite Show receivers on display synopsis: Nokia plans first-quarter 1997 delivery of "European Bouquet friendly" FTA IRD in price range of approximately US$650. Scientific Atlanta told show goers, "*We do not plan to manufacture an IRD that will be useful for widespread (read: multiple bouquet) reception,*" will concentrate on bouquet-specific designs with emphasis on their own PowerVu uplinked bouquets. Pace related, "*Expect DVB Compliant (FTA version) receiver sometime first half of 1997, price range of US$500.*" Echostar said, "*We have no plans to develop a receiver for Pacific or Asian use at this time.*"

Possible additional source for volume purchase (10,000 up quantity) of DVB Compliant MPEG-2 IRD (receiver) units: Joris Van Pelt, Sat 2000 Systems, PO Box 143, Al Harthy - 118, Sultanate of Oman at fax 968-597-893. His firm is offering a receiver that appears to be quite similar to the Skandia SK888 unit which they claim can be factory pre-programmed for bouquets such as EBB at US$590 FOB factory.

Korean firm Hyundai has two MPEG receivers available for distribution. Model HSS-100 lacks a conditional access module (i.e., should be suitable for FTA MPEG services) while DBS-100 includes a

"standard" Irdeto Conditional Access Module. They are looking for distribution in the Pacific: Contact Kenny H. Kim at tel 82-2-527-2539, fax 82-2-527-2540.

Status of present B-MAC analogue encrypted Indovision programme package (HBO Asia, ESPN, Discovery and TNT + Cartoons) may be determined shortly. Indovision has advised present B-MAC subscribers it plans to offer additional service channels using digital delivery technique as early as June 1997. Question is what satellite using what digital hardware package. There is a possible clue in recent start-up of HBO owned Cinemax service on ApStar 1 which is using General Instrument Digicipher 2 / MPEG 2 format digital equipment. If this group of pay TV operators do migrate to the GI equipment format, they will be only GI system users in Asia.

A book describing the trials and tribulations of satellite TV development (with emphasis on the South Pacific) is now being assembled for publication in January by Garry Cratt of AV-COMM Pty Ltd (Sydney). Previous historical overviews have concentrated on other regions of the world. Cratt's effort includes detailed looks at the transition to the current generation of satellites with extensive coverage maps of now operational and planned satellite systems. "A Practical Guide to Satellite TV": (116 pages, 121 photos, 44 pages of footprints) will be first introduced (A$39.95) during SPRSCS '97 to be held in Auckland January 21-25.

University of Auckland UniSat educational research project utilising multiple satellite dishes to provide programming materials to various University departments, reports 1,025 recordings made during most recent school year. 85% of the total was used by the Arts Departments which broke down further as: Political Studies - 29%, French - 18%, English - 13%, Japanese - 11%, Russian -8%, Spanish -7%, Chinese -6% and German - 5%.

Two satellite and short-wave delivered international radio broadcasting services, from Canada and Belgium, are going through massive down sizing; Radio Canada International (RCI) is not expected to survive beyond March 31 (1997). Both countries have experienced significant loss of support for their broadcasting schedules within their respective governments and RCI had been scheduled for shutdown in 1996 but was saved by a last minute budget appropriation. Many countries are finding less and less reason to continue their short-wave services which often date back 50 years. The rapid growth of satellite delivery of radio services is a prime reason - through satellite delivery RCI and similar broadcasters now reach world-wide without the unpredictable influences associated with short-wave broadcasting. One possible solution: RCI and Flemish Radio will shut down their expensive to operate short-wave transmission facilities and rely exclusively on satellite delivered networking in the future.

Digital TV and Radio

US officials are forecasting "several experimental ATV (Advanced - Digital - TV) stations will be operational before the end of 1997" and a "landslide of new ATV stations operational by the end of 1998."

US non-commercial PBS network inaugurated satellite feed of ATV/HDTV November 22 on Telstar 401 satellite. Service is primarily for engineering test at this time, is offered "free to air" to cable, broadcasters and others as a "signal source" that will allow engineers and others to evaluate the parameters of the new transmission technology. PBS hopes to have the channel programmed with 24 hour feeds, 7 days per week, by the end of 1997. Information concerning the status of the HDTV satellite service is available on the PBS Web site (http://www.pbs.org).

CBS TV network has received construction permit for 327kw channel 33 (UHF) ATV/HDTV television station in New York City. Station will duplicate programming of network's WCBS-TV initially.

Consumer level HDTV television receivers priced in range of US$2,500 upwards will be first demonstrated at January 1998 CES show according to US industry sources.

Consumer Electronics

Thomson sell off that would result in Korean manufacturer Daewoo ending up with Thomson Consumer Electronics product line and manufacturing facility appears to have been called off by the French government (CTD 9608, p. 20). Oversight Commission on December 4th ruled that sale to French consortium which had previously announced sell-through spin-off of consumer group cannot proceed. Political pressures within France are at core of change of mind. Thomson has a debt burden in excess of US$2B and analysts suggest it requires at least US$1B in additional investment to modernise the concern's production facilities. Daewoo had promised to invest US$1.5B and add 5,000 new in-France jobs as a part of the deal.

Digital still cameras with built-in colour LCD view finder have broken US$500 pricing barrier; Kodak DC25 at $499. Sharp has shown MD-based digital camera that can hold 2,000 JPEG format "stills," or, 365 stills with up to 7 seconds of audio ("memo") for each photo. Camera is intended for security and other applications, can be programmed to record image (plus sound as required) at 5 second to 24 hour intervals, unattended.

Flat screen TV displays with 40 - 42" viewing area are now within months of being available world-wide as high end products. Plasma panel technology has spent past year maturing from laboratory or one-off models to full prediction units. Most production quantities are small today (Fujitsu currently produces 500 per month) but larger numbers in region of 10,000 plus per month are likely before March. Pioneer says it has a 40" flat screen display which it targets at US$10,000. Similar 40 to 50" displays are in the mill from Mitsubishi, Qudaritton,

Whither Goes DVD?

Digital video discs are expected to be the next "big industry" in consumer electronics. Following on the trail of audio CDs, video discs promise extraordinary quality video reproduction, a permanence (lifetime) VHS tape cannot approach, utility of operation (dialling up specific segments or still framing individual photos frame by frame) and most important of all - lower production and distribution costs than VHS tape. The big players will be the movie producers and distributors who view DVD as someplace between an annoyance to the way they now successfully conduct business using VHS tape as a distribution medium and the promise of a gold plated Holy Grail. Concerns include copying from DVD to tape or eventually to other (blank) DVDs. How to prevent this is a massive challenge and since a movie on (consumer) DVD will have a technical quality better than even the most expensive 1" videotape masters of the same films, the opportunity to duplicate from DVD to tape movies for private sale (without authorisation) is significant. The first movies to be released will be available only for direct sale; tape rental of movies, now the core of the video tape store operation, will not come until a significant number of players are in consumer hands. Thus the initial plan is for a "sell through" operation which means consumers will have to purchase both players and movies initially.

Movie producers/distributors see DVD as a new way to sell and resell the same product again (and again). Industry sources suggest a modest DVD release with only 5,000 copies will cost under US$5 per disc at the point of manufacture; raising the total production to 50,000 will drop the per disc costs to under US$2. Most movie firms believe the DVD movies will initially retail for US$24.95 which leaves plenty of manoeuvring room for profit at the distribution levels as well as big bucks for promotion of individual titles.

For the first time in the history of consumer electronics, a new technology is being driven and road mapped by the software - not the hardware - producers. The movie industry has participated in the development of DVD from the outset and their own goals have significantly altered both the technology and the speed of development.

There is one major impediment to DVD success - a lack of recordability for consumers. While eventually home players will become home recorder/player devices, for the first few years this is unlikely. This makes DVD a latter-day version of Laser Discs (itself a perfectly suitable playback technology, albeit more expensive to implement than DVD). Unknown: Will the public adopt DVD as a playback only system?

Philips, Pioneer, and Panasonic. The flat screen displays are uniquely space saving (typically depth is 4"/102mm) and viewable over a wide range of angles (typically up to 160 degrees horizontal and vertical) which makes them suitable for public displays in busy traffic environments. Two separate model lines are developing; those for consumers and more expensive models for institutional uses.

Toshiba plans "first quarter 1997" launch in US of DVD players at US$599 and $699 although issues surrounding DVD (disc) encryption and concern from movie studios over security have still not been resolved. Firm launched DVD players in Japan November 1 amid flurry of technical problems including discs which had been created with the incorrect technical parameters (and therefore refused to play at demonstrations). Japanese Akai, not an original participant in the DVD consortium that created the world DVD standards now in some dispute, has announced it will begin marketing players in Japan at US$715 (list price) before the end of this month. Bottom line? DVD players supported by suitable libraries of film and other product on disc are not here yet and probably will not be prior to March. The copyright protection aspect remains unresolved although it is coming. Still missing - how movie products released on disc in North America (where they will always be first sold) are to be prevented from being physically shipped to other world markets prior to their intended release in those markets. (See summary report, above)

Forty percent of US homes now own some form of PC; an additional 25% claim they will seriously consider purchasing one in 1997. These are the results of a nation-wide (USA) survey of 5,000 households conducted late in November. Same survey found: 85% of homes now own VCR (up from 68% 1990), 60% of homes own colour TV with 25"/635mm or larger screens (up fron 41%), CD players are owned by 52% (up from 15%), camcorders are owned by 27% (up from 10%) and fax machines are owned by 9% (up from 1%).

US$999 home PC system has debuted in USA, featuring: 10.4" dual scan LCD colour monitor, 4x CD-ROM drive(s), 1-Gb hard disc, floppy drive, 33.7 kbps modem, stereo speakers, Pentium-equivalent 75 MHz processor and 16 Mb of RAM plus separately packaged keyboard and mouse. Firm introducing new package is Marietta,

Georgia Monorail Corp which believes the next major plateau of PC buyers will come from homes that lack computer expertise and have annual household incomes of (US) $25,000-$50,000.

There are now 23.4 million households "on line" for Internet according to November study. Forecast is this will rise to 66.6 million by 2000 with 38.2 million of those in US.

PC/TV interconnection package has been announced by Panasonic. System works by using twin transmitters to connect PC (typically in room separate from TV) and TV set in home. 2.4 GHz transmitter sends output of PC to receiver located at TV set while 900 MHz transmitter allows a remote joy stick or other PC controller located at or near TV set to command PC from distant point. Concept is that rather than doubling up on PCs, or moving PC to TV viewing area, PC and TV and operate independently of one another or jointly with TV becoming "extension of PC." Package will carry US list price near $500.

59% of all people playing games on Internet are women according to US study. Average US game player spends $200 to upgrade existing PC hard and software to allow game playing in cyberspace.

Following on the heels of Echostar promotion that gives away Ku-band home dish system to anyone purchasing programming package (SatFACTS Monthly November 1996, p. 6) comes a promotion by an Inglewood, California store during their December 5th grand opening: A 19" Sharp TV set for US 99 cents.

Macrovision anti-copy system is now being employed for at least some movie showings by a growing number of world DTH home pay TV services. The list now includes DirecTV (USA), PerfecTV (Japan) and Sky Latin-America.

Hitachi has shown combination digital still and full motion camcorder unit that replaced normal tape or flash memory with computer style hard disc.

Cable/Fibre/MMDS/Pay TV

Phonographic Performances (N.Z.) Ltd. is latest group to appear in the cable TV marketplace claiming a share of cable revenues. PPL believes the 1994 Copyright Law entitles them to share in receipts of cable systems carrying programming that is "substantially of musical nature" and is placing cable systems on notice that it intends to be paid "royalties" for cable carriage of such services. In notifying cable firms, PPL claims, "*Under our licensing agreements with our recording company members, all royalties accruing from the broadcast of foreign and domestic music videos in New Zealand are collected by this company and paid directly to our recording company members who in turn remit royalties both domestically and overseas to their licensors in accordance with the provisions of their licensing agreements with their licensors. These royalty payments will then be shared with the licensor's recording artists in accordance with the terms of their recording contracts with their recording artists.*" Double talk? It means PPL wants a percentage of the "gate" taken in by cable firms, a formula not yet completed. They claim that music based services such as CMT, MCM (Paris) and MTV all attract royalty fees to artists through PPL. Cable firms are not ready to accept PPL claims at this stage, pointing out clearly worded portions of affiliation contracts with programmers including CMT and MCM which state they - the programmer - are responsible for all music licensing fees connected with carriage of their service(s). Of interest: PPL reportedly collects 10% of the gross revenues from Auckland MAX and Christchurch CRY in return for granting the two terrestrial broadcasters "licensing rights" for the music videos they play. The interesting wrinkle to this is that overseas music video promoters do everything but kill (and that is not certain) to coerce networks such as MTV to play their videos, recognising the exposure of their product results in increased popularity and enhanced sales. This one could be headed for the Copyright Tribunal

Wellington's High Court is not expected to issue a decision in the case brought by Clear Communications against Telecom before February and most probably March. Clear has pursued the court case which follows on the heels of Telecom's attempt to buy into management control of Sky Networks even though the Telecom approach to Sky has terminated. When Telecom NZ attempted to buy into Sky, Clear maintains there was a "side agreement" that would have created a virtual monopoly of (pay) television programme distribution in New Zealand by the Telecom + Sky consortium. Clear told the High Court, "*One of the provisions of the agreement was that if Sky were to make its sport, HBO* (movie) *and Orange channels available on more favourable terms to another cable operator, it would have to* (also) *reduce the price to Telecom to match. Under those circumstances, it would not be rational to make the programming available on more favourable terms and no other cable operator would be able to match what Telecom could pay.*" Clear also contended to High Court that the agreement stated that Sky would only add additional channels if it also made those channels available to Telecom, that Telecom would carry Sky programming into regions of New Zealand which Sky does not reach, and that 50% of all Telecom (broadcast) advertising would be spent with Sky. Telecom has argued the court case was totally unnecessary because the agreement was abandoned when Telecom elected not to further pursue buying into Sky. Telecom gave up on its plans to purchase management control of Sky after Clear and others in the telecommunications industry began legal actions to stop the planned purchase. Clear has said it wants a court ruling on the matter because it believes that any future deal struck between Telecom (for their First Media cable project) and Sky should be on a non-exclusive basis.

Sky Network's John Fellet was in Gisborne December 16 and scheduled for Greymouth December 18 to officially welcome cable systems in each community into the "Sky Network Affiliate" roster. Agreements originally offered to the two cable operators (as well as others in New Zealand) were rescinded in August when Sky discovered the wording of the agreements laid Sky open to having the cable operators take Sky before the Copyright Tribunal for possible rulings adverse to Sky (CTD 9606, p. 14). Sky's revised agreements were then offered to selected cable operators in early December with some urgency on both sides to have the agreements signed and completed as quickly as possible. The agreements are for one year (previously they were for five years) and essentially tie the cable operator to Sky in a way that precludes the cable system from carrying non-Sky programming without the approval of Sky in advance.

Public announcement of the INL take-over of Sky Networks (CTD 9609, p. 2) is now anticipated "very close to the end of the year" according to sources close to the deal. As reported in CTD for November, the terms of the agreement have been set although INL continues to state that no formal agreement has been reached. One of the hold-ups for the agreement being announced is the need for TVNZ to obtain permission from the new State Owned Enterprise Minister (Ms. Shipley) to increase their Sky stake to 20% from the present 16.2%. CTD understands the deal is structured to allow TVNZ to end up owning 20% of the "new" Sky, and have two seats on the board, while INL will own 80% and hold the balance of the seats. TVNZ views the increased ownership of Sky as important to the near term future of their SOE operation because of "*the ability to tap into the pay TV cash flow that will result.*" (See CTD October 9608, p. 2 and CTD November 9609, p. 2 for detailed discussion.)

Cable TV growth in US was "flat" for first time ever in six months ending November 30th. Top 100 multiple cable system operators reported only 0.2% growth. During past seven years cable has grown typically 2% or more each 6 month reporting period. Industry surveys both "basic cable" subscribers and optional "pay TV level" subscribers twice per annum. Pay TV group did grow (1.8% against 5.5% in last six month period). Reasons? Growth of Ku-band DBS, natural "saturation" (64.1% of all US households are now connected to cable). TCI remains largest MSO with 13.947 million US households (22.5% of all cable households).

Philips Communication & Security Systems (Samantha Willoughby tel 61-2-9888 8222, fax 61-2-9888-0440) has announced a new broadband distribution amplifier (model BGD 802) created for the purpose of amplifying cable television signals delivered through a HFC (hybrid fibre to coaxial) system. The amplifier employs a push-pull cascode wide-band device that functions from 50 to 860 MHz. It is capable of distributing 60 channels at 107 dBuV output level with composite triple beat (CTB) at -60 dB.

Terrestrial Broadcasting

Lifeway Ministries Trust is the latest group to commence television broadcasting operation; channel 60, Snells Beach/Warkworth. The station plans expansion to the Whangarparaoa peninsula through a translator station during 1997. Lifeways has been producing television programming with a Sony equipped production facility for several years, primarily in the "family entertainment" area. The station is targeting viewers who are "*offended by excessive violence and nudity*" on existing networks and is tapping world-wide Christian television programme sources for the majority of its viewing day. The station has also installed a trio of satellite receive antennas and negotiated programme carriage contracts with Deutsche Welle (for their English programming), MCM Asia (for music video programming) and Eternal Word Television Network. Lifeway has a five year plan to expand its coverage nation-wide utilising satellite interconnection to low and medium power "community television stations" operated by individuals and groups.

Americans continue to debate how proposed television programme rating system should be structured. MPAA (motion picture folks) are pushing standard modelled after their own ratings code but majority of those submitting suggestions are urging three separate ratings for each programme based upon (1) violence, (2) sex, and (3) language. Various groups lobbying on this issue are suggesting system should be modelled after USA's HBO Movie service ratings (not employed by Sky Network TV's HBO movie service). In current TV year, TV programming is rated on "green" (suitable for family viewing), "yellow" (warning for children) and "red" (not suitable for children) basis. In Green light group, ABC has 8 programs. At opposite extreme, ABC has 7 reds to lead in both categories.

Value of a TV station? A (UHF) television station in Manassas, Virginia has been sold for US$30m with agreement that if US Supreme Court rules that local cable firms must continue to carry the TV station's programming, buyer will pay seller an additional US$10m. Station achieves parity with more easily received competitive VHF channels through cable carriage, suffers with smaller audience if individual homes are required to install their own aerials to receive station. US Supreme Court has heard case involving "must carry" (mandatory cable carriage) of local UHF stations, will rule on issue sometime in 1997.